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A new *Dendroides* species from China (Coleoptera, Pyrochroidae), with a key to the Palaearctic species

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Abstract

Dendroides Blair, 1914 is distributed in North America and East Asia, with eight described species. Currently, a new species, *Dendroides huanglong* Pan, **sp. nov.**, is described and illustrated from Sichuan Province, China, representing the third *Dendroides* species for the Palaearctic Region. A key to the Palaearctic species of *Dendroides* is provided and the phylogenetic position of *Dendroides* is briefly discussed.

Key Words

China, *Dendroides*, fire-coloured beetle, key, new species

Introduction

Dendroides Latreille, 1810 is a small pyrochroid genus within the subfamily Pyrochroinae, with eight species: six from North America and two from East Asia.

The generic scope of *Dendroides* was first clarified by Blair (1914), with a key to the six species, including a new species, *D. lesnei* Blair, 1914, described from Honshu, Japan. Fourteen years later, another Nearctic species was described by Van Dyke (1928). Since then, no new species have been added to the fauna of the Nearctic Region. Half a century later, in the revision of North American Pyrochroidae, Young (1975) provided diagnoses for adults, larvae and pupae of all reliably confirmed species and keys to them, respectively.

In 1936, Kôno described *Dendroides nakabusana* from Honshu in Japan, based on its compound eyes being slightly larger than those of *D. lesnei*. However, it was synonymised by Young (2005a), based on examination of types of both species. The other Palaearctic species is *D. ussuriensis* L.N. Medvedev, 1977. This species was described from the Primorye territory of Russia, Heilongjiang of China ["ст. Гаолинцзы" (= Gaolingzi Zhan, 高岭子站) and "ст. Шитоухецзы" (= Shitouhezi Zhan, 石头河子站). Both are stations on the original Chinese Eastern Railway and are in Shangzhi, Harbin, Heilongjiang] and North Korea (Medvedev 1977).

During an investigation of the insect diversity in Huanglong National Nature Reserve (Sichuan, China), individuals of a new species, *Dendroides huanglong* Pan sp. nov., were collected using a light trap. The new species is described and illustrated herein and a key to *Dendroides* species from the Palaearctic Region is provided.

Materials and methods

The type material is deposited in the Museum of Hebei University, Baoding, China (MHBU). The specimens were studied using a Nikon SMZ1500 and the images were taken using a Canon EOS 5D Mark III (Canon Inc.,

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Tokyo, Japan) with a Laowa FF 100 mm F2.8 CA-Dreamer Macro 2 × or Laowa FF 25 mm F2.8 Ultra Macro 2.5–5 × (Anhui Changgeng Optics Technology Co., Ltd, Hefei, China). Figures of the antennae were hand drawn using a Nikon SMZ1500 with a camera lucida. Label data are presented verbatim. Line breaks on labels are denoted by a single slash (/).

Most of the terms in the description are from previous literature (e.g. Young (1975)). The ocular index (OI) = 100 × minimum dorsal distance between compound eyes / maximal dorsal width across compound eyes (Campbell and Marshall 1964).

Results

Dendroides huanglong Pan, sp. nov.

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Type locality. China • Sichuan Province, Aba Tibetan and Qiang Autonomous Prefecture, Songpan County, Huanglong National Natural Reserve.

Type specimens. ***Holotype*:** ♂, labelled "2024. VII.17 / 四川黄龙自然保护区 [Sichuan, Huanglong Natural Reserve] / 丹云峡保护站 (灯诱) [Danyunxia Protection Station (light trap)] / 河北大学博物馆 [Museum of Hebei University]", "32°44'59"N / 103°57'38"E / elev. 2542 m, 王成涛 [Cheng-Tao Wang] leg./ 河北大学博物馆 [Museum of Hebei University]", "HOLOTYPE / *Dendroides huanglong* sp. n. / Det. Pan" (MHBU). ***Paratypes*:** 1♂, 1♀, with same collection event labels as the holotype and additional labels: "P4H1 or P4H2", "PARATYPE / *Dendroides huanglong* sp. n. / Det. Pan" (MHBU).

Diagnosis. Like *D. ussuriensis*, this new species can be easily distinguished from other *Dendroides* species by its colouration: body reddish testaceous, but maxillary palpomeres, antennae and most parts of legs black (Fig. 1). The body size of *D. huanglong* sp. nov. is larger than *D. ussuriensis*; the body length is 14.5–17.2 mm in the former and 12.0–13.0 mm in the latter. The compound eyes of *D. huanglong* sp. nov. are larger than those of *D. ussuriensis*: they meet above the head in the male of the former (Fig. 2) but not in the latter and OI is 8.1 in the female of the former (Fig. 3), but more than 25.0 in the latter. Additionally, the rami of the antennal flagellomeres are more prominent and elongate in *D. huanglong* sp. nov. than those of *D. ussuriensis* (Figs 4, 5), especially in the female, wherein flagellomere I has a distinct ramus, while flagellomere I in *D. ussuriensis* lacks a ramus; rami of flagellomeres III–VII are each longer than the preceding flagellomere in *D. huanglong* sp. nov., but shorter than the preceding flagellomere in *D. ussuriensis*.

Description. Male: Body (Fig. 1) reddish testaceous, except apex of mandibles, maxillary palpomeres, antennae, eyes and legs (except base of coxae) black. Body covered with medium length yellow-brown setae; setae of antennae, tibiae and tarsi little shorter; setation dense, but sparse on pronotum. Body length: 14.5–15.4 mm; humeral width: 3.1–3.4 mm.

Head (Fig. 2) widest across compound eyes, with dense irregular punctures, diameter of punctures more than spacing of punctures. Compound eyes very large, contiguous dorsally. Clypeus and labrum flattened; labrum short, anterior margin slightly emarginate in middle. Frons with one sub-rounded depression between antennal fossae; occiput abruptly, transversely concave; genae reduced, short. Antennae (Fig. 4) long, extending back to near middle of elytra; scape slightly and gradually widened apically; pedicel short, approximately 1/4 length of scape; flagellomere I approximately twice as long as pedicel and slightly shorter than flagellomere II; flagellomeres III–V subequal in length and slightly longer than II, flagellomeres VI–VIII subequal in length and approximately as long as scape; flagellomere IX very long, approximately as long as preceding four flagellomeres; rami of flagellomeres extremely elongate and subcylindrical, at least 4.0 × length of respective flagellomere; rami of flagellomeres V–VIII with gradually decreasing lengths, ramus of flagellomere VIII approximately as long as flagellomere IX.

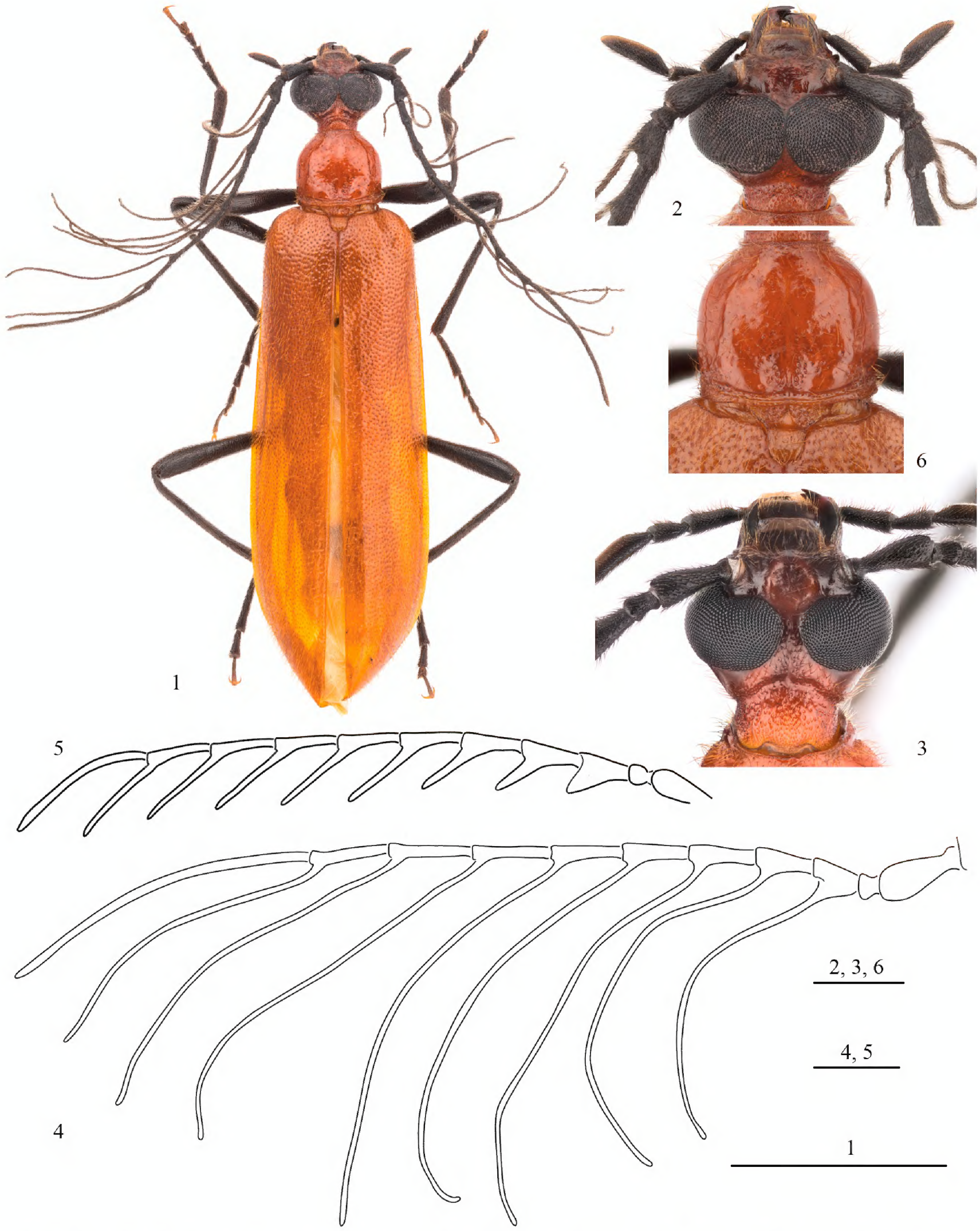
Pronotum (Fig. 6) subcampanulate, maximum width slightly narrower than head, length approximately 0.89 × width; posterior 2/3 of lateral margins subparallel; disc shining, sparsely covered with small punctures, diameter of punctures distinctly less than spacing of punctures; disc with conspicuous longitudinal mesal groove, distinct depression at centre of base and transverse groove along posterior margin. Scutellar shield rounded posteriorly, depressed at centre of base, sparsely punctate. Legs slender; prothoracic tarsomeres I and V subequal in length, II–IV gradually shorter; mesothoracic tarsomere I longest, V second longest, II–IV gradually shorter; metathoracic tarsomere I longest, IV second longest, II–III gradually shorter. Pretarsal claws simple.

Posterior margin of abdominal sternites III–VI subparallel, posterior margin of sternite VII almost straight, VIII with posterior margin acutely emarginate mesally. Parameres elongate, approximately twice as long as phallobase (Figs 7, 8), more than basal 9/10 of parameres fused in dorsal view (Fig. 7). Penis elongate, somewhat dorsoventrally flattened, abruptly narrowed apically and produced into a bluntly recurved hook (Figs 9–11).

Female: Similar to male, except body larger, length 17.2 mm, humeral width 4.2 mm; head slightly narrower than pronotum; compound eyes relatively small, not dorsally contiguous (OI = 8.1); genae slightly prominent (Fig. 3); antennal rami distinctly shorter than those of male, each longer than that of preceding flagellomere, but less than twice as long; ramus of flagellomere I sub-triangular (Fig. 5); pronotum slightly wider than that of male, aspect ratio ca. 0.84; posterior margin of abdominal sternites VII and VIII roundly convex.

Etymology. The specific name is derived from the name of the type locality.

Distribution. China: Sichuan.



Figures 1–6. *Dendroides huanglong* Pan, sp. nov., from Sichuan, China. **1.** Habitus; **2, 3.** Head; **4, 5.** Antennae; **6.** Pronotum. **1, 2, 4, 6.** Male, holotype; **3, 5.** Female, paratype. Scale bars: 5 mm (**1**); 1 mm (**2–6**).

Key to the species of *Dendroides* from Palaearctic Region

1 Body unicoloured, piceous. Japan ..... *D. lesnei* Blair, 1914
– Body reddish testaceous, but antennae and most of legs black (Fig. 1) 2
2 Body smaller, length 12.0–13.0 mm; eyes relatively smaller, not dorsally contiguous in male and with wider range in female (OI = 25.8–26.8) (fig. 1 in Medvedev (1977); fig. 7 in Young (2016)); in female, antennal flagellomere I with ramus indistinct, rami of flagellomeres II–VIII each shorter than that of preceding flagellomere (fig. 6 in Medvedev (1977)). Russia (Far East), China (Heilongjiang, Jilin), North Korea ..... *D. ussuriensis* L.N. Medvedev, 1977
– Body larger, length 14.5–17.2 mm; eyes dorsally contiguous in male (Fig. 2) and short separated in female (OI = 8.1) (Fig. 3); females with antennal flagellomere I produced into a distinct ramus, rami of flagellomeres III–VII each longer than that of preceding flagellomere (Fig. 5). China (Sichuan) ..... *D. huanglong* Pan, sp. nov.

Figures 7–11. Male genitalia of *Dendroides huanglong* Pan, sp. nov., from Sichuan, China. **7, 8.** Tegmen: **7.** Dorsal view; **8.** Lateral view; **9–11.** Penis: **9.** Lateral view; **10.** Dorsal view; **11.** Apex, lateral view. Scale bars: 1 mm (**7–10**); 0.5 mm (**11**).

Discussion

In the preliminary molecular phylogenetic results for selected taxa of Pyrochroidae, based on mtDNA *COI* barcode sequences (Pan et al. 2021; Gao et al. 2024), *Dendroides* formed a sister group with the clade of the genera *Pseudopyrochroa* Pic, 1906 and *Schizotus* Newman, 1838. These three genera share the following morphological characters of the adult: the temples are reduced and not prominent; the antennal pedicel is short and apically widened; the male genitalia have the parameres fused for most or all of their length (usually

more than 9/10 their length). Based on the above, we propose that the genera *Dendroidopsis* Young, 2004, *Neopyrochroa* Blair, 1914 and *Sinodendroides* Young, 2005 [for descriptions and figures, see Young (1975, 2004, 2005b)] also belong to the clade *Dendroides* + *Pseudopyrochroa* + *Schizotus*.

However, as mentioned in Pan et al. (2021), this relationship is not entirely congruent with that suggested by comparative morphological results of larvae, pupae and adults (for details, see Pan et al. (2021)); it needs to be expanded, that the penis with recurved apical hooks occurs not only in *Pseudopyrochroa*, but also *Dendroides*, at least in *D. huanglong* sp. nov. and *D. canadensis* Latreille, 1810, as well as *Neopyrochroa flabellata* (Fabricius, 1787).

If only adults are considered, those of *Dendroides* differ from *Pseudopyrochroa* and *Schizotus* as follows: frons lacking cranial pits; compound eyes very large, especially in male, dorsally contiguous or nearly so; rami of antennal flagellomeres very long, in usual 4.0 × longer than the length of the respective flagellomere; pronotum slightly wider than long; aedeagal parameres very elongate, more than twice as long as phallobase.

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